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March 13, 1995

TO: Minerals File

FROM: Tom Munson, Reclamation Hydrologist

RE: Site Inspection, Jumbo Mining Company, Drum Mine, M/027/007, Millard County, Utah

Date of Inspection: March 9, 1995
Time of Inspection: 10:45 - 3:00Pm
Conditions: Sunny and windy
Participants: Rody Cox (BLM); Dave Hartshorn (Jumbo Mining Company); Wayne Hedberg, Tony Gallegos, Tom Munson, and Lynn Kunzler, DOGM

Purpose of Inspection: To examine the conditions of the site and assess the amount of topsoil available for reclamation.

The visit started with an office meeting to discuss the areas onsite surveyed for topsoil and how exactly the surveys were carried out by Mr. Hartshorn. Mr. Hartshorn stated that he didn't consider any areas less than 1 foot in depth and that he stopped looking for topsoil when he reached 50,000 cubic yards. All depth values associated with areas A-J (see attached diagrams) were given as average values of all depths taken from marked backhoe pits in the area minus .5 feet. The .5 feet was assumed to be soil left in place over bedrock.

Some specifics on areas surveyed

Area G trench (adjacent to 2 fuel tanks on surface at 400 gallons each) stopped at 5.5 feet maybe 6-7 feet.
Area D (area located behind the tanks)
Area E (1 photo of trench)
Area C (adjacent to shop w/spent oil tank and barrels of antifreeze)

Existing Topsoil stockpiles

We visited topsoil piles 1-6 and observed that they indeed existed as shown on the map. Mr. Hedberg asked how the volumes were calculated and Mr. Hartshorn said that he used a transit and surveyed the piles, except in the case of area 5, where he surveyed one pile and counted the remaining piles, using the first pile as his estimate.

Revegetation Test Plots

Two revegetation test plots, approximately three years old, were observed. The one closest to the road had very little growth except weeds and cheat grass. Some crested wheat grass sprouts were observed. The second test plot, located on the heap pad, showed signs of better vegetation success. Questions were asked about the white color of the heaps and the group was told by Mr. Hartshorn that lime was used in the leaching process and that the color was due to lime residue. The test plots on the heap did not appear to be affected by the lime. The amount of topsoil applied was six inches. The difference in success between the plots was attributed to the time of year the two plots were seeded and the moisture conditions at the time of seeding. A very important observation as this will need to be taken into consideration on future reclamation at the site.

Pit Areas

The Alto pit and the Keystone Test pit were observed as well as the 2 main pit areas. Residual mining equipment and related debris (large culverts) remained in the bottom of the North pit where Jumbo mined underground for some time.

Garbage Dump

The waste dump, or garbage dump, contained a number of barrels containing possibly mineral oil, petroleum products, or garbage which needed to be recycled. Other barrels found at the site were either rinsed cyanide barrels or recyclable plastic barrels. Dave Hartshorn indicated he knew of no hazardous materials disposed of in the garbage dump area. Many old haul pac tires were present and needed to be recycled as well, according to Mr. Hartshorn. Batteries (to be recycled), various junked materials, equipment and debris was also observed. Ore sample bags were present which Dave indicated were split samples not treated with chemicals. Dave also indicated that MSHA had inspected the site and was aware of his disposal procedures.

Shop Area and Process Ponds

Dave Hartshorn indicated that the deer had been drinking out of the pregnant pond and not the Barren pond, due to the lime residue found in the Barren pond (making the assumption that the pregnant pond is better quality?). Cyanide in drums (pellet form) was observed next to the Barren pond, as well as bags of lime on pallets. Both were exposed to the elements and the lime appeared to have hardened/solidified. The pregnant pond was still receiving surface drainage and was significantly fuller than the Barren pond.

Ground coconut charcoal (expended) was found adjacent to the shop area. The charcoal had been HCL acid and water rinsed and was stored in open wooden storage bins next to the mill above the barren pond. The group did not tour the mill nor the analytical lab.

Diesel and Gasoline Storage tanks

Noted two underground tanks (1 gasoline), (1 used oil and associated 55 gal. drums) that are excavated and to be removed. Both had been pumped and emptied by a contractor from SLC (used oil and antifreeze). Some spillage was noted on the concrete pad beneath the barrels (emptied) next to the used oil tank and shop area. Two 10,000 gallon diesel tanks near the electric generator showed signs of spillage on the ground (extent unknown).

Heap Leach Pads

The heap leach pads and associated surface and ground water drainage needs to be checked and monitored for leaks. Concerns over the integrity of the liners under the existing heap leach pads is questionable at best. According to Mr. Hartshorn heap leach pads 1,2,3,4, and 5 were leached by Jumbo. Low grade 1 was never leached by anyone. Pad 6 and low grade 3 were (probably) leaking when Jumbo took over the site. High grade 6 and 7 and low grade 1,2 and 3 not permitted by DWQ.

Recommendations

1. Clean up all recyclable materials (i.e. drums, tanks, tires, batteries, petroleum products, etc.)

2. Provide an updated plan addressing what areas can be reclaimed now and how all environmental concerns have been addressed (i.e., how heaps have been decommissioned, drainage restored). Most of the area has been inactive for five years and some portions greater than five years, and as such, the requirements of R647-4-107 should be met.

jb
Attachments
M027007.mem

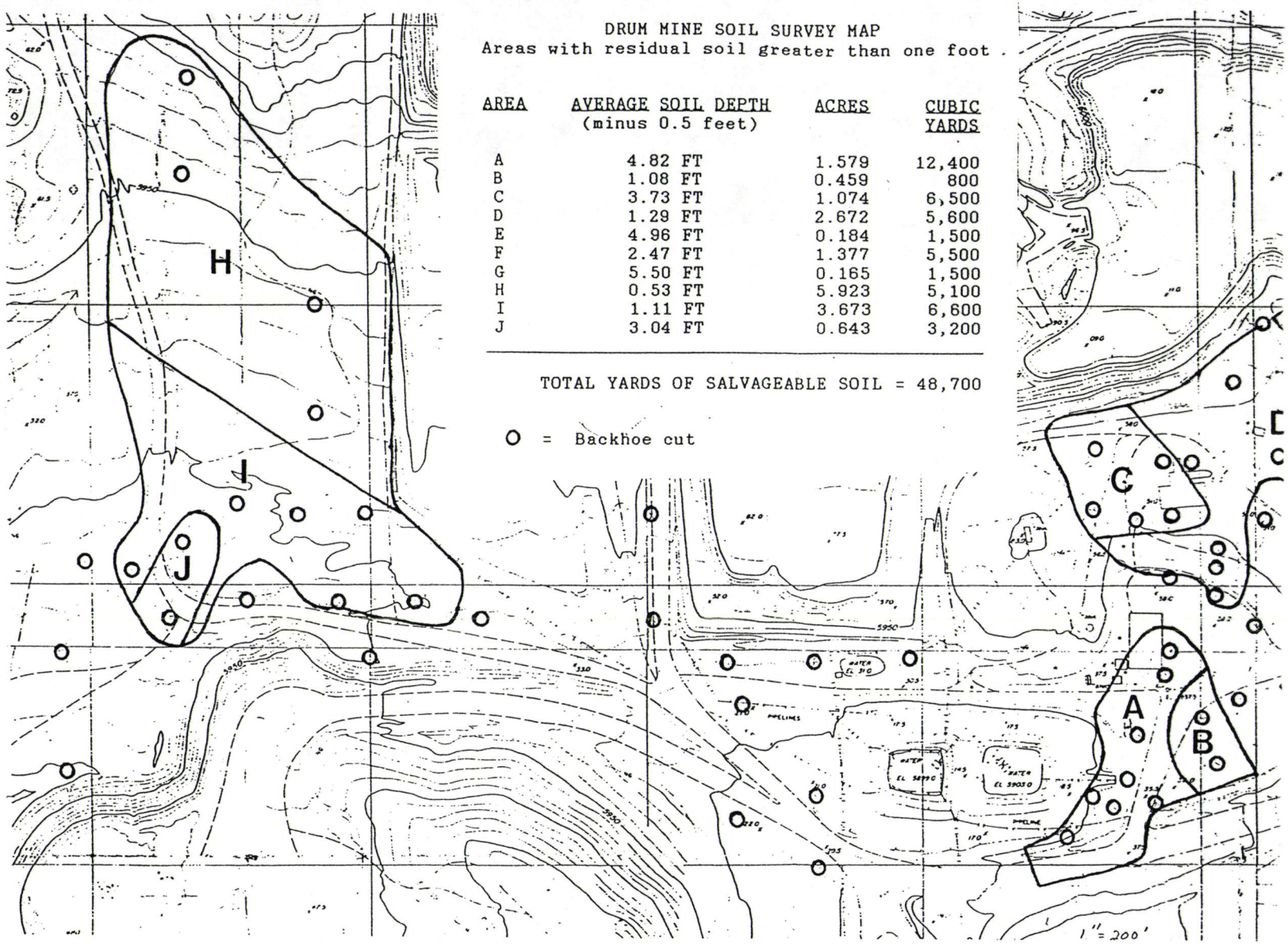
DRUM MINE SOIL SURVEY MAP

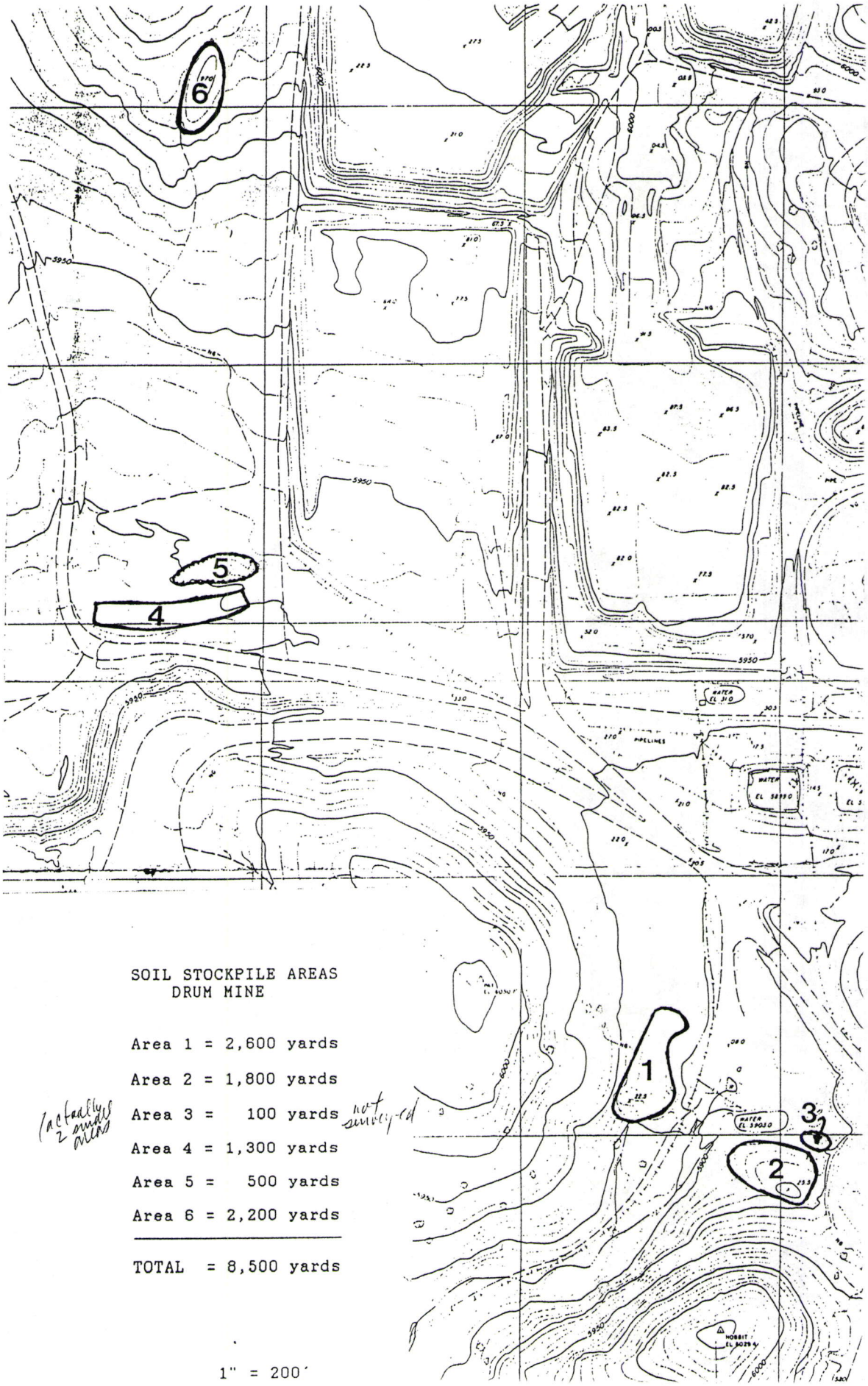
Areas with residual soil greater than one foot .

AREA	AVERAGE SOIL DEPTH (minus 0.5 feet)	ACRES	CUBIC YARDS
A	4.82 FT	1.579	12,400
B	1.08 FT	0.459	800
C	3.73 FT	1.074	6,500
D	1.29 FT	2.672	5,600
E	4.96 FT	0.184	1,500
F	2.47 FT	1.377	5,500
G	5.50 FT	0.165	1,500
H	0.53 FT	5.923	5,100
I	1.11 FT	3.673	6,600
J	3.04 FT	0.643	3,200

TOTAL YARDS OF SALVAGEABLE SOIL = 48,700

O = Backhoe cut





SOIL STOCKPILE AREAS
DRUM MINE

Area 1 = 2,600 yards

Area 2 = 1,800 yards

Area 3 = 100 yards

Area 4 = 1,300 yards

Area 5 = 500 yards

Area 6 = 2,200 yards

TOTAL = 8,500 yards

(actually 2 small areas)

not surveyed

1" = 200'

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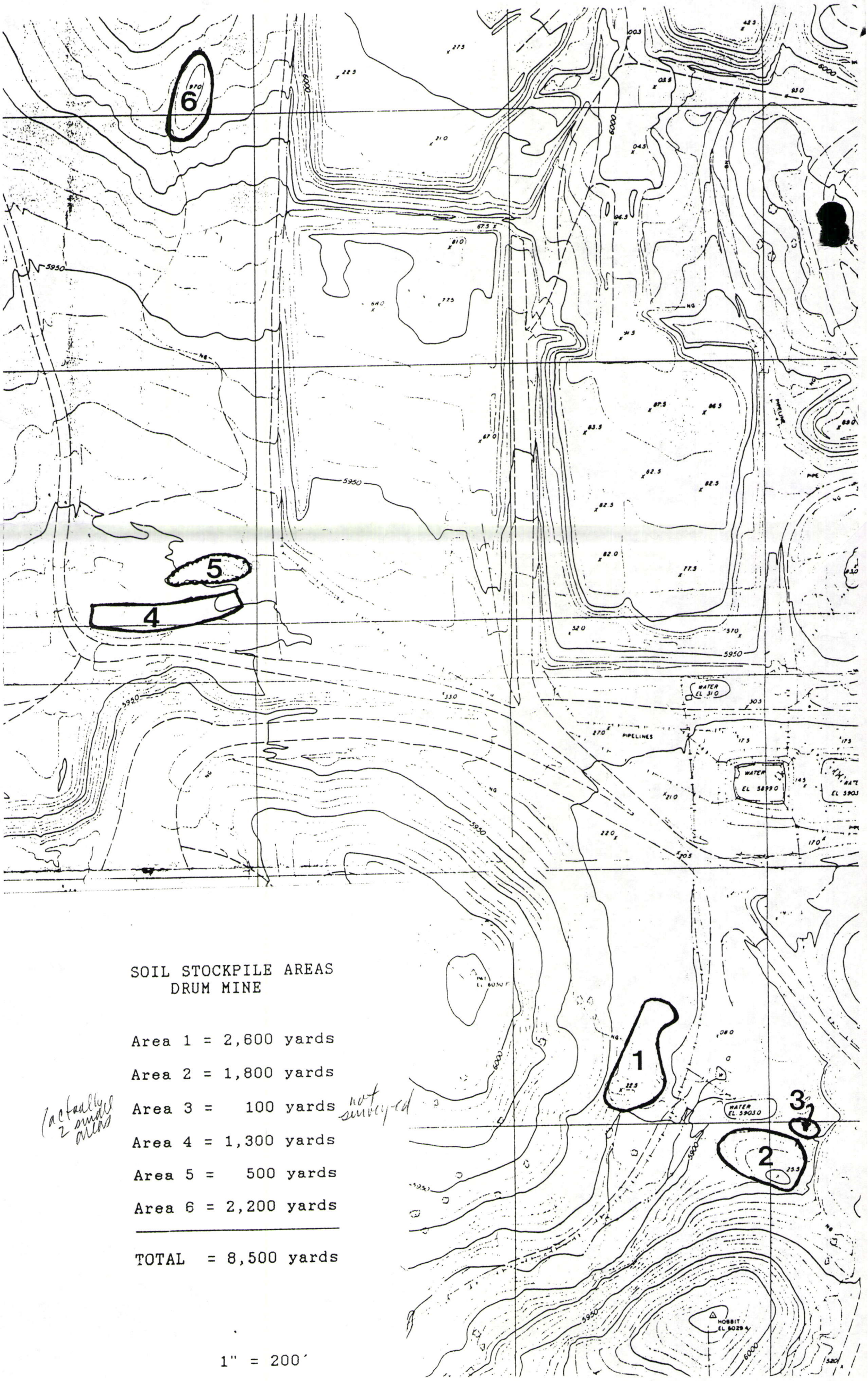

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